

## General

### Title

Esophageal resection mortality: percentage of in-hospital deaths per 1,000 discharges with esophageal resection for cancer, ages 18 years and older.

### Source(s)

AHRQ Quality Indicators (AHRQ QI) ICD-9-CM and ICD-10-CM/PCS specification version 6.0. Inpatient Quality Indicator 08 (IQI 08) esophageal resection mortality rate. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2016 Mar. 25 p.

## Measure Domain

### Primary Measure Domain

Clinical Quality Measures: Outcome

### Secondary Measure Domain

Does not apply to this measure

## Brief Abstract

### Description

This measure is used to assess the percentage of in-hospital deaths per 1,000 discharges with esophageal resection for cancer, ages 18 years and older.

### Rationale

Esophageal resection is a complex cancer surgery. In 1996, 265 hospitals (19.7 percent of providers) performed at least 1 procedure. Of these hospitals, the mean number of procedures was 2; the median was 1; and the 90th and 95th percentiles were 4 and 6, respectively. In general, there are a moderate number of hospitals with lower volumes and a few hospitals with much higher volumes. Overall procedure volume was stable over the 2008 time period.

Several studies have noted that providers with higher volumes have lower mortality rates for the procedure than providers with lower volumes. This suggests that perhaps providers with higher volumes

have some characteristics, either structurally or with regard to processes that influence mortality after this procedure. However, if these characteristics do indeed exist, what they are is unclear.

Note: The following caveats affect the validity of the indicator:

*Confounding Bias:* Patient characteristics may substantially affect the performance of the indicator; risk adjustment is recommended. The concern is theoretical or suggested, but no specific evidence was found in the literature.

*Unclear Construct:* There is uncertainty or poor correlation with widely accepted process measures. The concern is theoretical or suggested, but no specific evidence was found in the literature.

## Evidence for Rationale

Davies GM, Geppert J, McClellan M, et al, UCSF-Stanford Evidence-based Practice Center. Refinement of the HCUP quality indicators. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2001 May. (Technical review; no. 4).

Desoto M. (Center for Delivery, Organization, and Markets [CDOM]. Agency for Healthcare Research and Quality [AHRQ]. Rockville, MD). Personal communication. 2017 Feb 16. 1 p.

## Primary Health Components

Esophageal cancer; gastrointestinal-related cancer; esophageal resection; total gastrectomy; death

## Denominator Description

Discharges, for patients ages 18 years and older, with either:

Any-listed International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) or International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) procedure codes for esophageal resection and any-listed ICD-9-CM or International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis codes for esophageal cancer; or

Any-listed ICD-9-CM or ICD-10-PCS procedure codes for esophageal resection and any-listed ICD-9-CM or ICD-10-CM diagnosis codes for gastrointestinal-related cancer; or

Any-listed ICD-9-CM or ICD-10-PCS procedure codes for total gastrectomy and any-listed ICD-9-CM or ICD-10-CM diagnosis codes for esophageal cancer

See the related "Denominator Inclusions/Exclusions" field.

## Numerator Description

Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator

## Evidence Supporting the Measure

### Type of Evidence Supporting the Criterion of Quality for the Measure

A systematic review of the clinical research literature (e.g., Cochrane Review)

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

# Additional Information Supporting Need for the Measure

Unspecified

## Extent of Measure Testing

Refer to *Refinement of the HCUP Quality Indicators* for measure testing information.

## Evidence for Extent of Measure Testing

Davies GM, Geppert J, McClellan M, et al, UCSF-Stanford Evidence-based Practice Center. Refinement of the HCUP quality indicators. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2001 May. (Technical review; no. 4).

## State of Use of the Measure

### State of Use

Current routine use

### Current Use

not defined yet

## Application of the Measure in its Current Use

### Measurement Setting

Hospital Inpatient

### Professionals Involved in Delivery of Health Services

not defined yet

### Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

### Statement of Acceptable Minimum Sample Size

Unspecified

### Target Population Age

Age greater than or equal to 18 years

## Target Population Gender

Either male or female

# National Strategy for Quality Improvement in Health Care

## National Quality Strategy Aim

Better Care

## National Quality Strategy Priority

Making Care Safer

Prevention and Treatment of Leading Causes of Mortality

# Institute of Medicine (IOM) National Health Care Quality Report Categories

## IOM Care Need

Getting Better

Living with Illness

## IOM Domain

Effectiveness

Safety

# Data Collection for the Measure

## Case Finding Period

Unspecified

## Denominator Sampling Frame

Patients associated with provider

## Denominator (Index) Event or Characteristic

Clinical Condition

Institutionalization

Patient/Individual (Consumer) Characteristic

Therapeutic Intervention

## Denominator Time Window

not defined yet

## Denominator Inclusions/Exclusions

### Inclusions

Discharges, for patients ages 18 years and older, with either

Any-listed International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) or International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) procedure codes for esophageal resection and any-listed ICD-9-CM or International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis codes for esophageal cancer; or

Any-listed ICD-9-CM or ICD-10-PCS procedure codes for esophageal resection and any-listed ICD-9-CM or ICD-10-CM diagnosis codes for gastrointestinal-related cancer; or

Any-listed ICD-9-CM or ICD-10-PCS procedure codes for total gastrectomy and any-listed ICD-9-CM or ICD-10-CM diagnosis codes for esophageal cancer

Note: Refer to the original measure documentation for ICD-9-CM, ICD-10-PCS, and ICD-10-CM codes.

### Exclusions

Exclude cases:

Transferring to another short-term hospital (DISP=2)

Major Diagnostic Categories (MDC) 14 (pregnancy, childbirth, and puerperium)

With missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

## Exclusions/Exceptions

not defined yet

## Numerator Inclusions/Exclusions

### Inclusions

Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator

### Exclusions

Unspecified

## Numerator Search Strategy

Institutionalization

## Data Source

Administrative clinical data

## Type of Health State

Death

## Instruments Used and/or Associated with the Measure

Unspecified

## Computation of the Measure

### Measure Specifies Disaggregation

Does not apply to this measure

### Scoring

Rate/Proportion

### Interpretation of Score

Desired value is a lower score

## Allowance for Patient or Population Factors

not defined yet

## Description of Allowance for Patient or Population Factors

The predicted value for each case is computed using Generalized Estimating Equation (GEE) logistic regression and covariates for age (in 5-year age groups), All Patient Refined-Diagnosis Related Groups (APR-DRG) and Major Diagnostic Categories (MDC). The expected rate is computed as the sum of the predicted value for each case divided by the number of cases for the unit of analysis of interest (i.e., county or state). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. The Smoothed Rate is the risk-adjusted rate shrunken to the volume specific rate and the prior year smoothed rate.

Refer to *Inpatient Quality Indicators (IQI) Parameter Estimates ICD-9-CM Version 6.0* in the "Companion Documents" field for additional information.

## Standard of Comparison

not defined yet

## Identifying Information

### Original Title

IQI 8: esophageal resection mortality rate.

## Measure Collection Name

Agency for Healthcare Research and Quality (AHRQ) Quality Indicators

## Measure Set Name

Inpatient Quality Indicators

## Submitter

Agency for Healthcare Research and Quality - Federal Government Agency [U.S.]

## Developer

Agency for Healthcare Research and Quality - Federal Government Agency [U.S.]

## Funding Source(s)

Agency for Healthcare Research and Quality (AHRQ)

## Composition of the Group that Developed the Measure

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicator (QI) measures are developed by a team of clinical and measurement experts in collaboration with AHRQ. The AHRQ QIs are continually updated as a result of new research evidence and validation efforts, user feedback, guidance from the National Quality Forum (NQF), and general advances in the science of quality measurement.

## Financial Disclosures/Other Potential Conflicts of Interest

None

## Adaptation

This measure was not adapted from another source.

## Date of Most Current Version in NQMC

2016 Mar

## Measure Maintenance

Measure is reviewed and updated on a yearly basis

## Date of Next Anticipated Revision

Unspecified

## Measure Status

This is the current release of the measure.

This measure updates a previous version: AHRQ QI research version 5.0. Inpatient quality indicator 8 technical specifications: esophageal resection mortality rate. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2015 Mar. 2 p.

## Measure Availability

Source available from the [Agency for Healthcare Research and Quality \(AHRQ\) Quality Indicators \(QI\) Web site](#) .

For more information, contact the AHRQ QI Support Team at 5600 Fishers Lane, Rockville, MD 20857; E-mail: [QIsupport@ahrq.hhs.gov](mailto:QIsupport@ahrq.hhs.gov); Phone: 301-427-1949.

## Companion Documents

The following are available:

Davies GM, Geppert J, McClellan M, et al, UCSF-Stanford Evidence-based Practice Center. Refinement of the HCUP quality indicators. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2001 May. (Technical review; no.4). This document is available from the [AHRQ Quality Indicators Web site](#) .

AHRQ quality indicators. Inpatient quality indicators (IQI) parameter estimates ICD-9-CM version 6.0. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2017 Mar. 66 p. This document is available from the [AHRQ Quality Indicators Web site](#) .

AHRQ quality indicators. Inpatient quality indicators ICD-9-CM benchmark data tables version 6.0. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2017 Mar. 28 p. This document is available from the [AHRQ Quality Indicators Web site](#) .

AHRQ quality indicators. Inpatient quality indicators (IQI) log of ICD-9-CM, ICD-10-CM/PC, and DRG coding updates and revisions to IQI documentation and software version 6.0. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2017 Mar. 48 p. This document is available from the [AHRQ Quality Indicators Web site](#) .

AHRQ quality indicators. Inpatient quality indicators composite measure workgroup. Final report. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Mar. various p. This document is available from the [AHRQ Quality Indicators Web site](#) .

HCUPnet: a tool for identifying, tracking, and analyzing national hospital statistics. [Web site]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); [accessed 2017 Mar 24].

HCUPnet is available from the [AHRQ Web site](#) .

## NQMC Status

This NQMC summary was completed by ECRI on December 4, 2002. The information was verified by the Agency for Healthcare Research and Quality on December 26, 2002.

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## Production

## Source(s)

AHRQ Quality Indicators (AHRQ QI) ICD-9-CM and ICD-10-CM/PCS specification version 6.0. Inpatient Quality Indicator 08 (IQI 08) esophageal resection mortality rate. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2016 Mar. 25 p.

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